

FIG.1

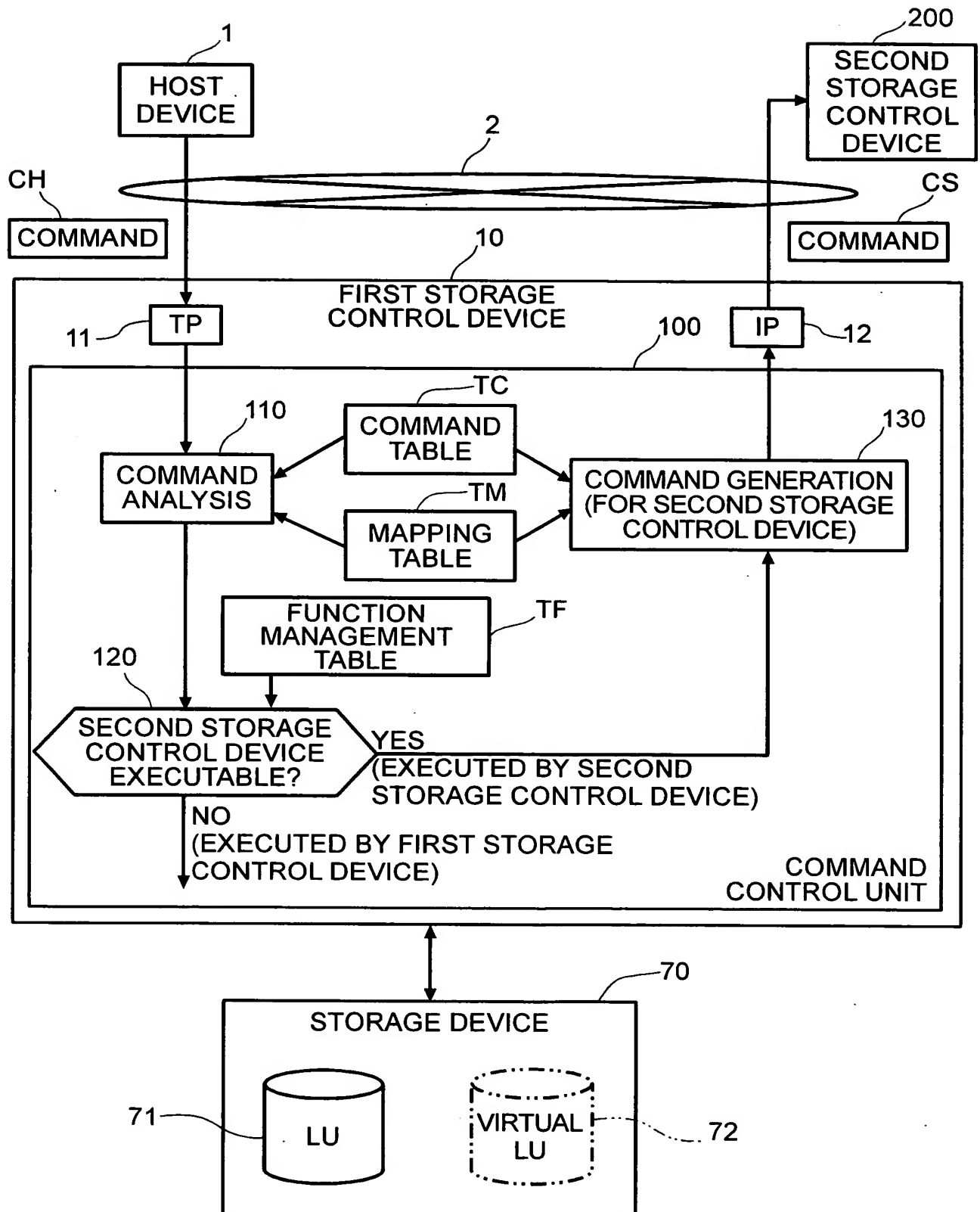


FIG.2

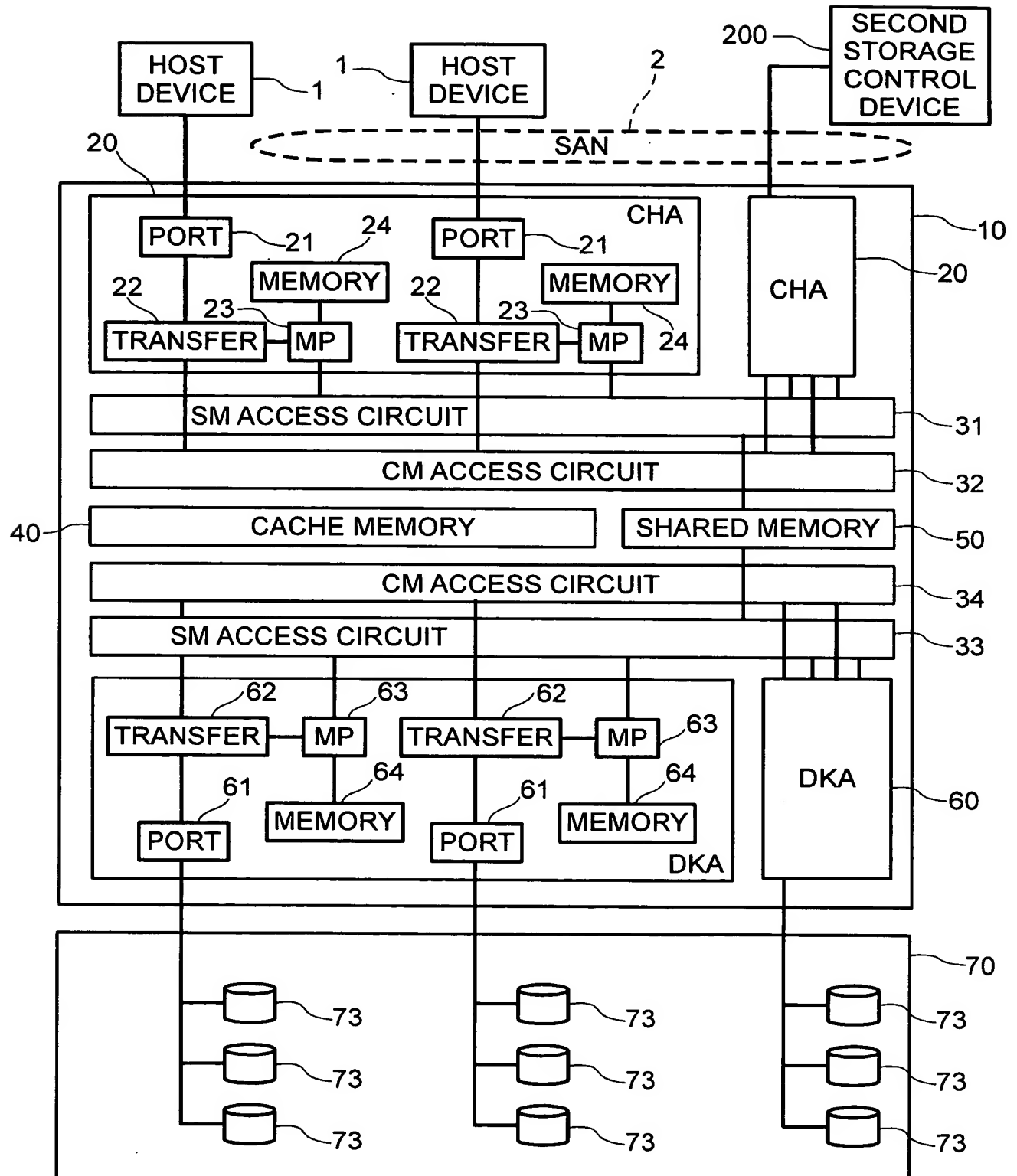


FIG.3

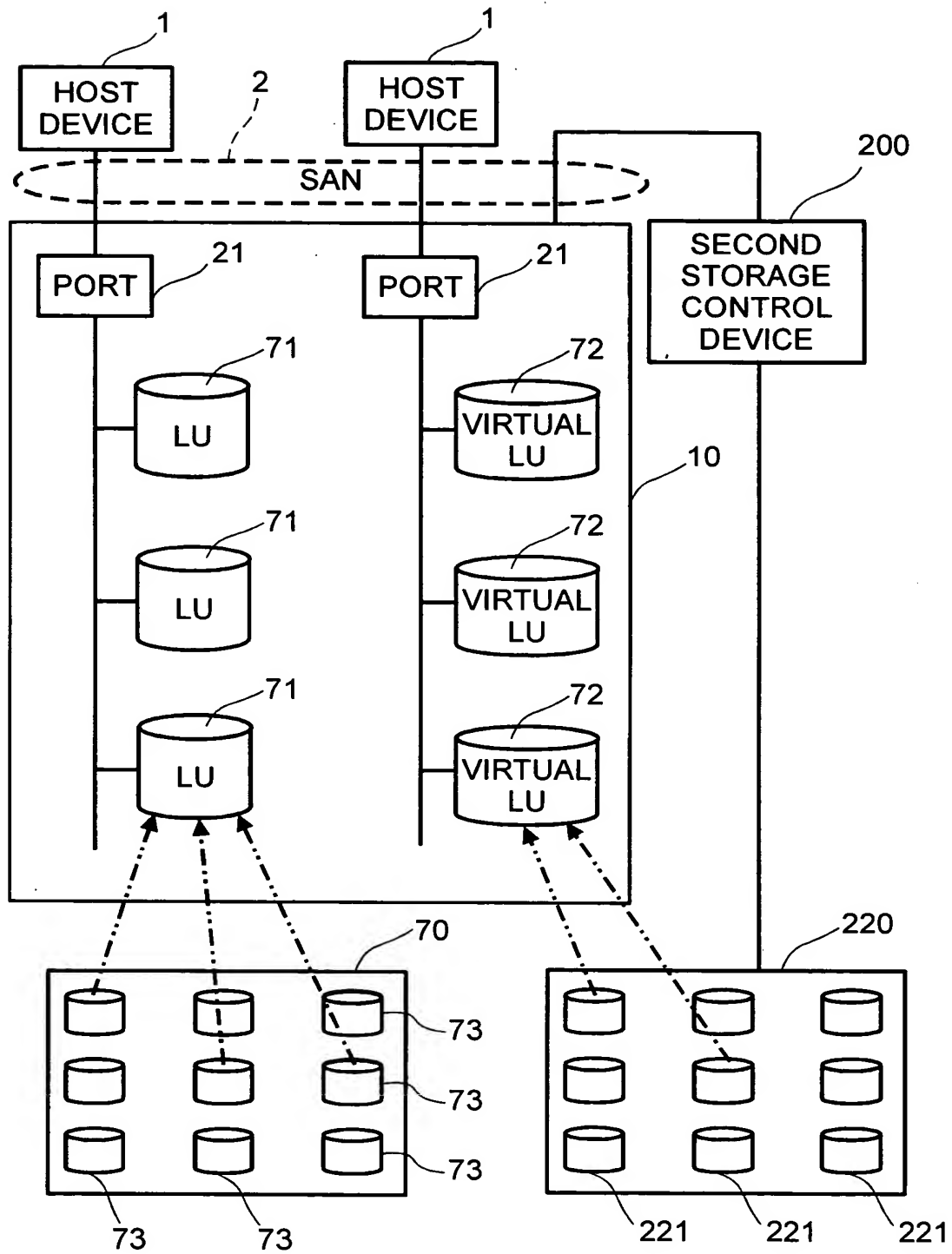


FIG.4

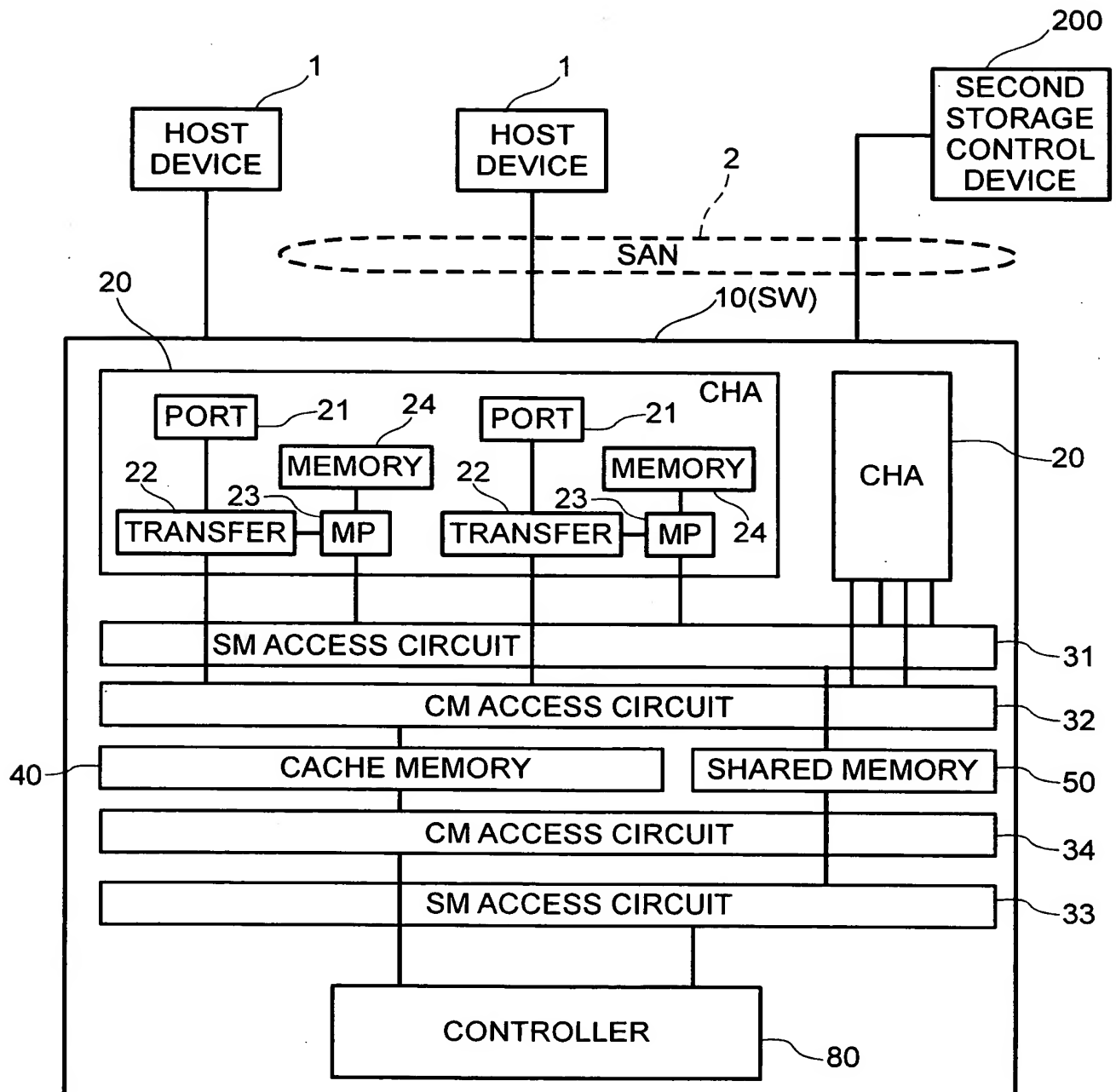


FIG.5

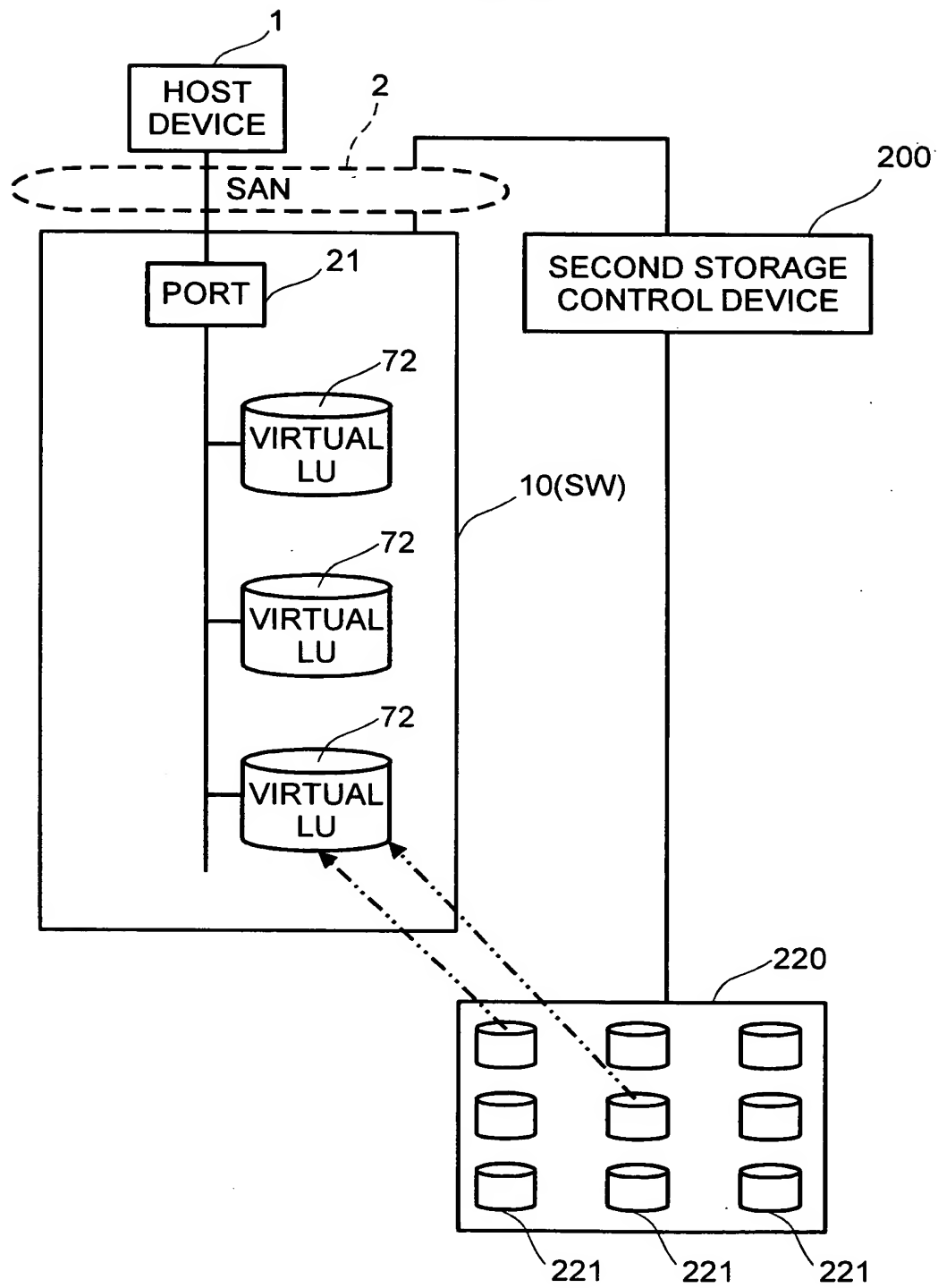


FIG.6

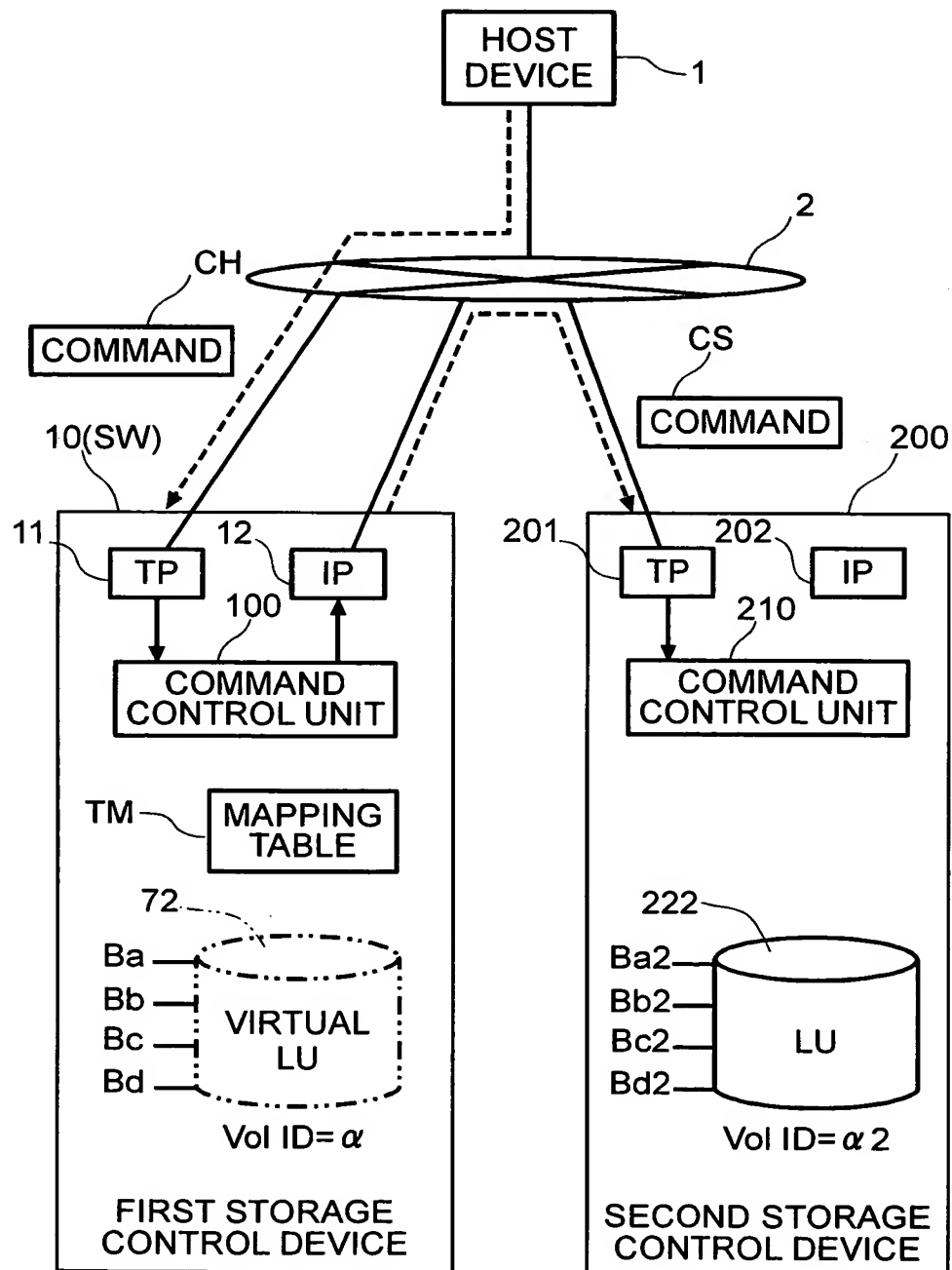


FIG.7

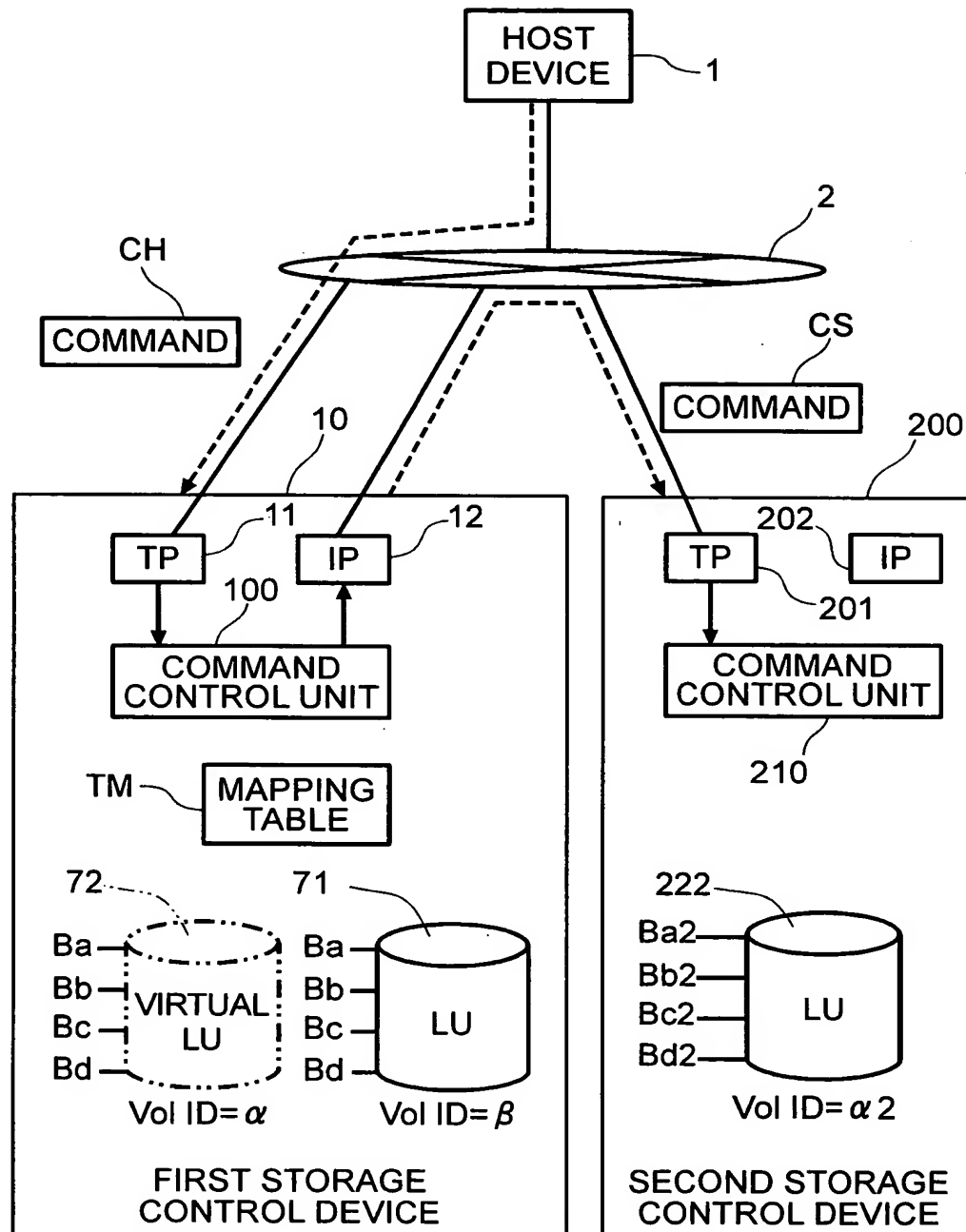


FIG.8

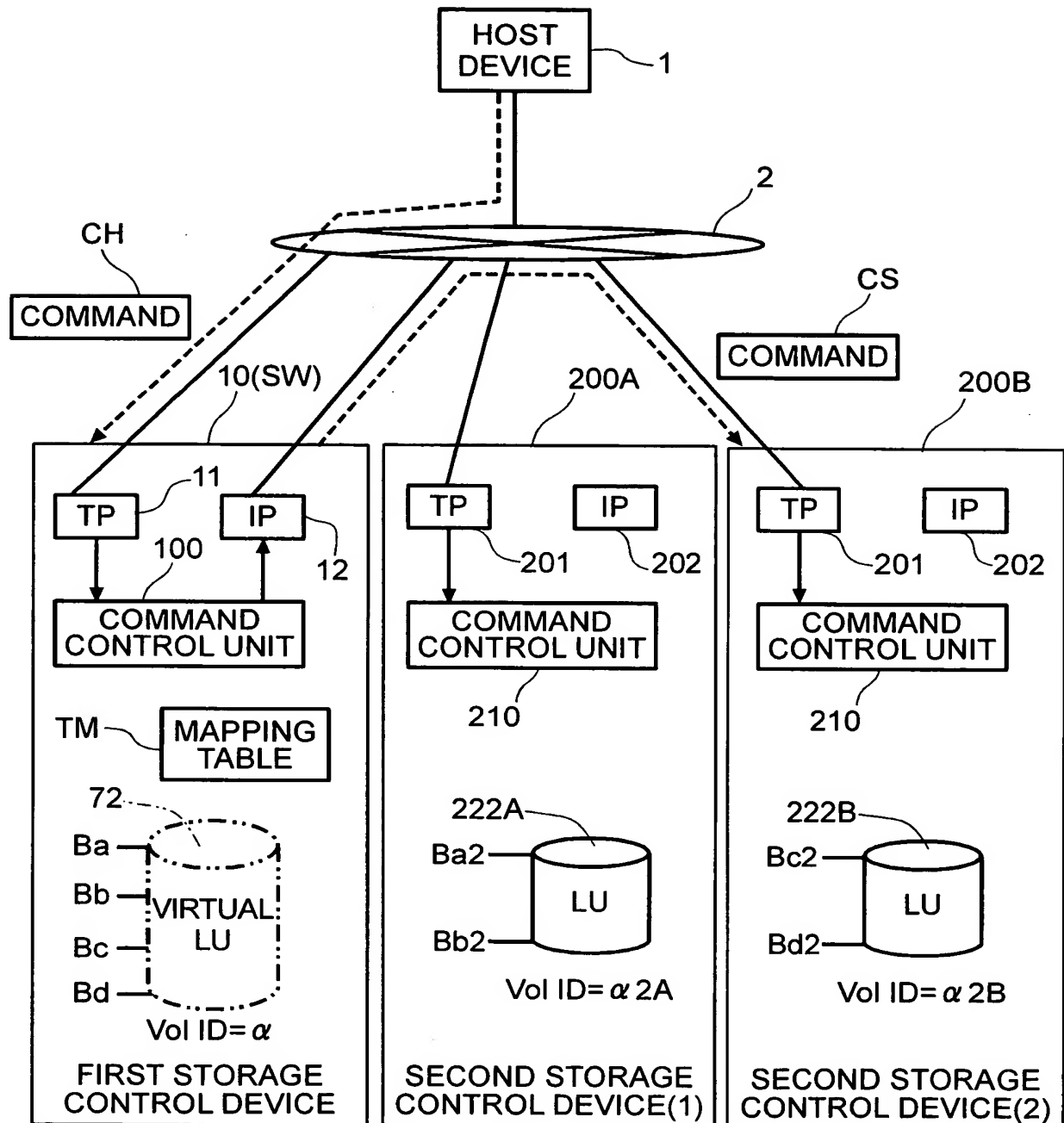


FIG.9

(a) EXAMPLE OF MAPPING TABLE
(IN THE CASE OF FIBER CHANNEL SWITCH)

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
α	Ba	SD2	TP2	$\alpha 2$	Ba2
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
α	Bd	SD2	TP2	$\alpha 2$	Bd2

(b) EXAMPLE OF MAPPING TABLE
(IN THE CASE OF DISK ARRAY SYSTEM)

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
α	Ba	SD2	TP2	$\alpha 2$	Ba2
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
α	Bd	SD2	TP2	$\alpha 2$	Bd2
β	Ba	SD1	INTERNAL	—	—
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
β	Bd	SD1	INTERNAL	—	—

(c) EXAMPLE OF MAPPING TABLE
(IN THE CASE WHERE THERE ARE PLURALITIES OF
SECOND STORAGE CONTROL DEVICES)

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
α	Ba	SD2(1)	TP2(1)	$\alpha 2A$	Ba2
\vdots	Bb	SD2(1)	TP2(1)	$\alpha 2A$	Bb2
\vdots	Bc	SD2(2)	TP2(2)	$\alpha 2B$	Bc2
α	Bd	SD2(2)	TP2(2)	$\alpha 2B$	Bd2

FIG.10

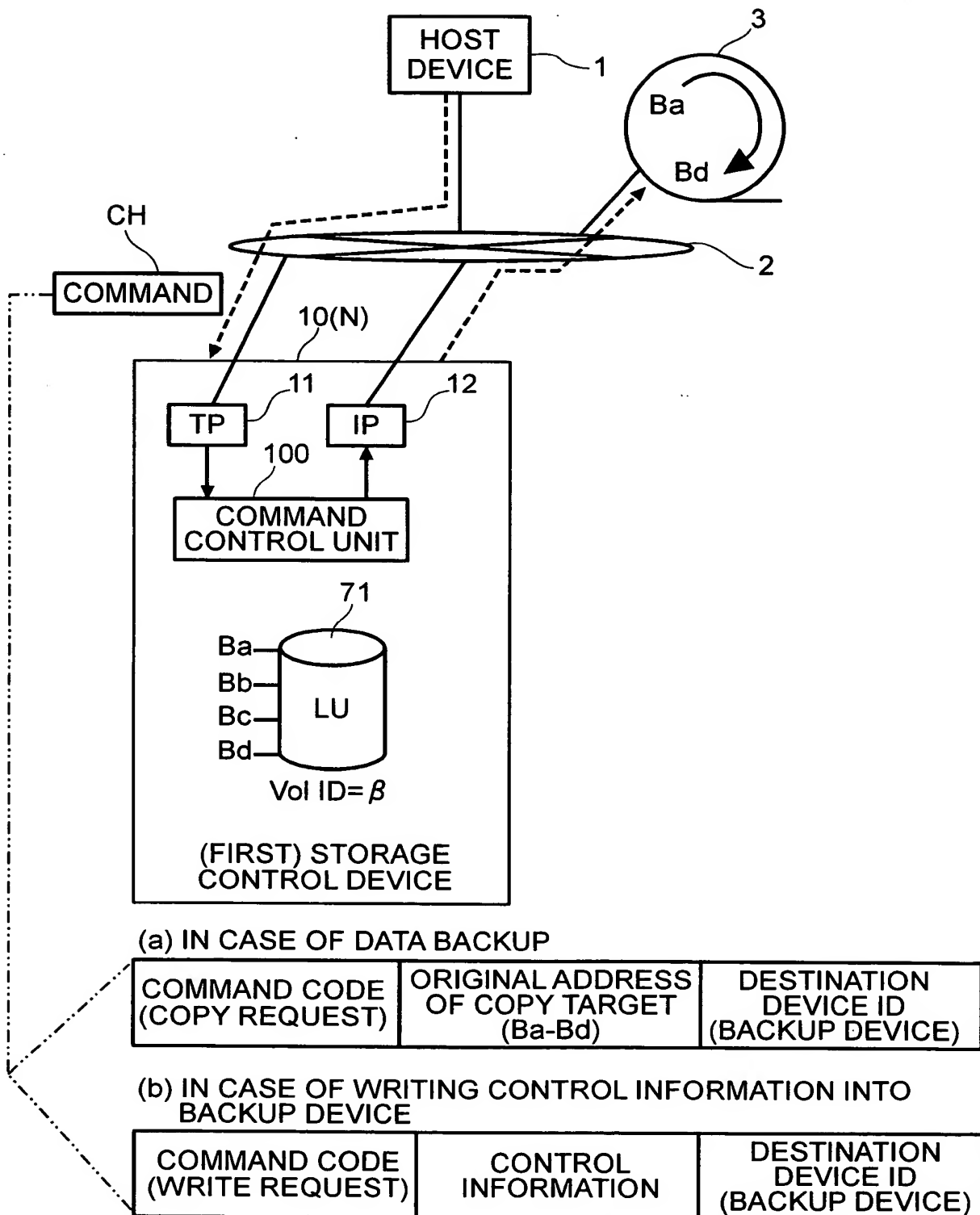
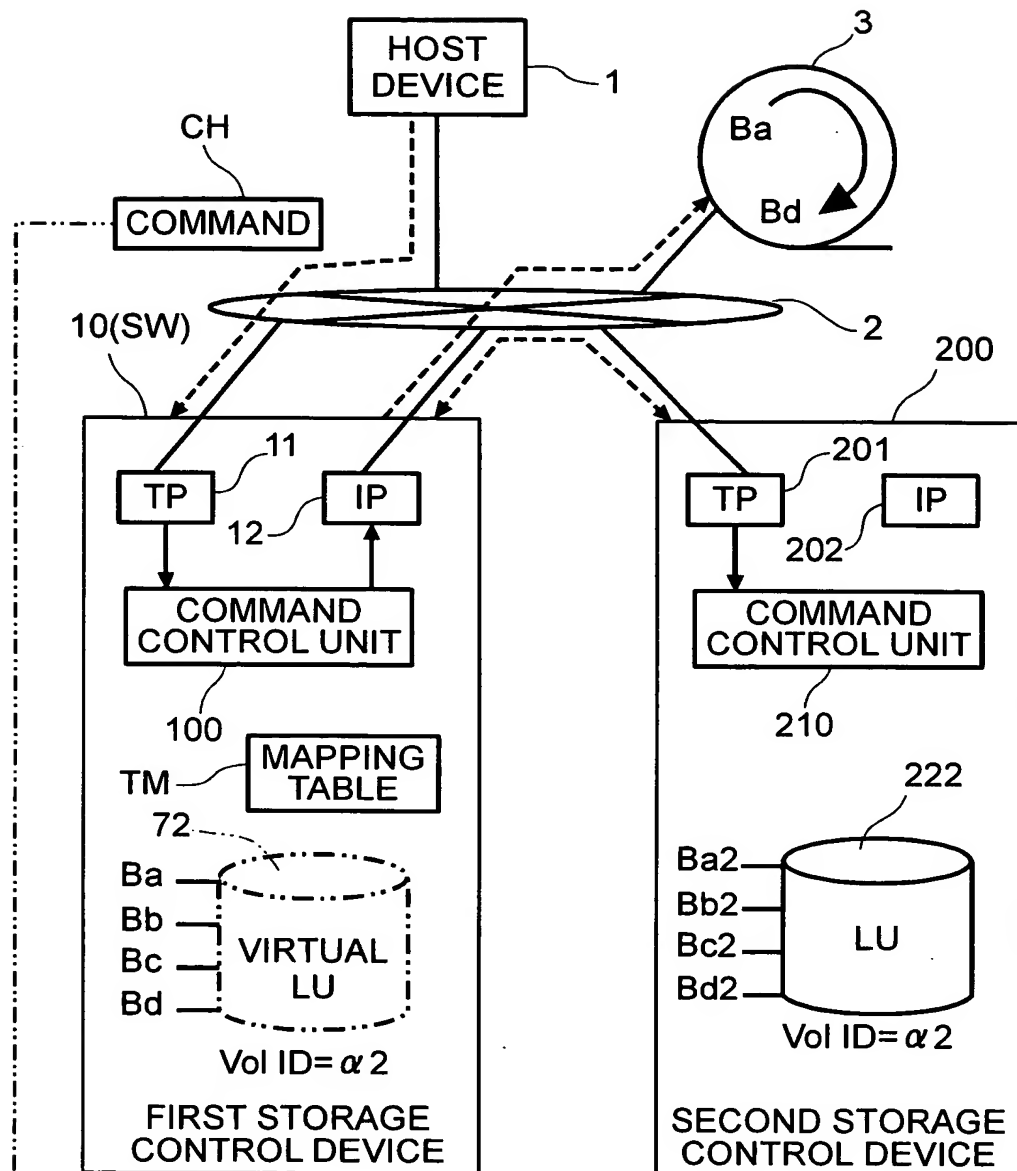


FIG.11


(a) IN CASE OF DATA BACKUP

COMMAND CODE (COPY REQUEST)	ORIGINAL ADDRESS OF COPY TARGET (Ba-Bd)	DESTINATION DEVICE ID (BACKUP DEVICE)
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(b) IN CASE OF WRITING CONTROL INFORMATION IN
BACKUP DEVICE

COMMAND CODE (WRITE REQUEST)	CONTROL INFORMATION	DESTINATION DEVICE ID (BACKUP DEVICE)
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FIG.12

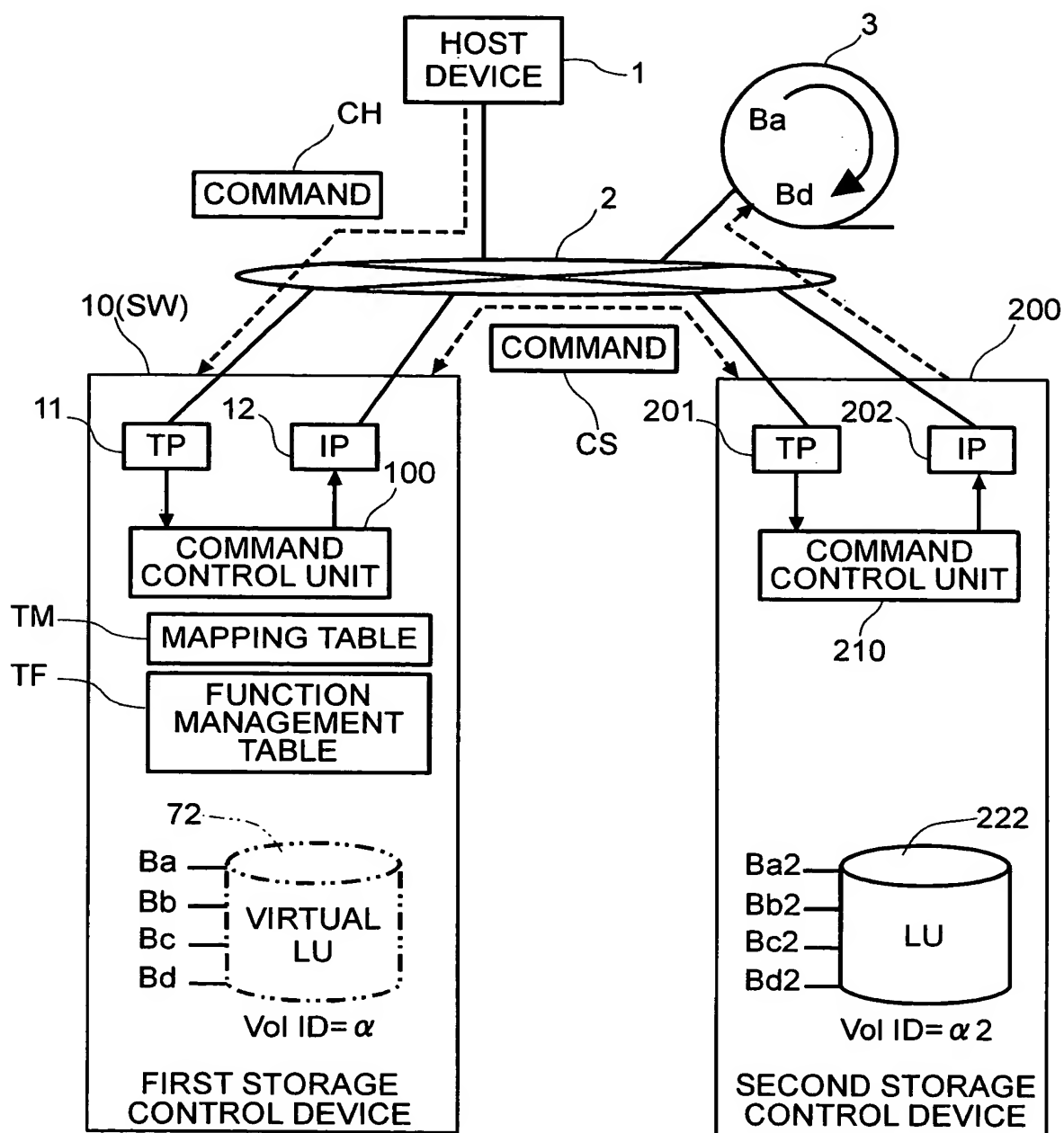


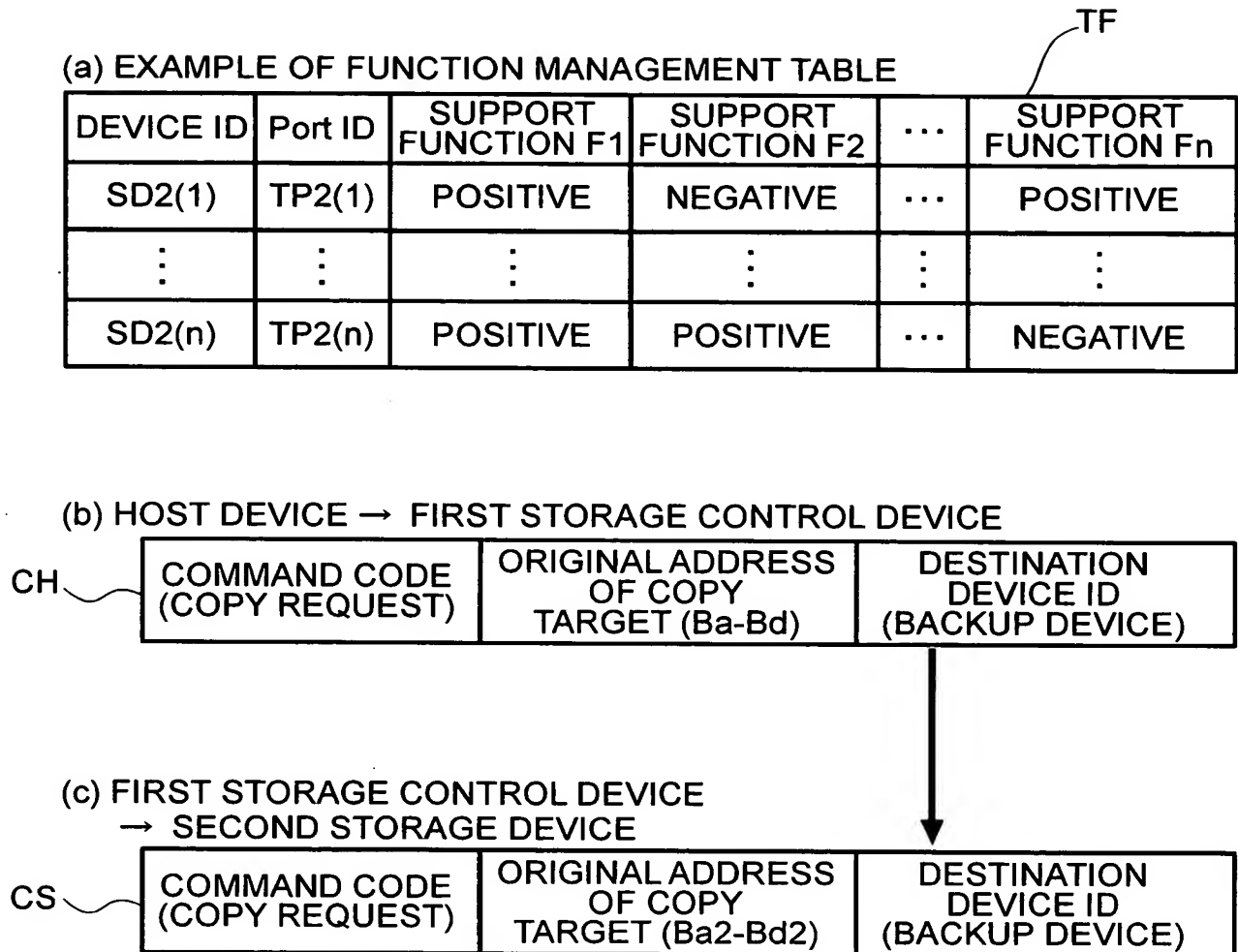
FIG.13


FIG.14

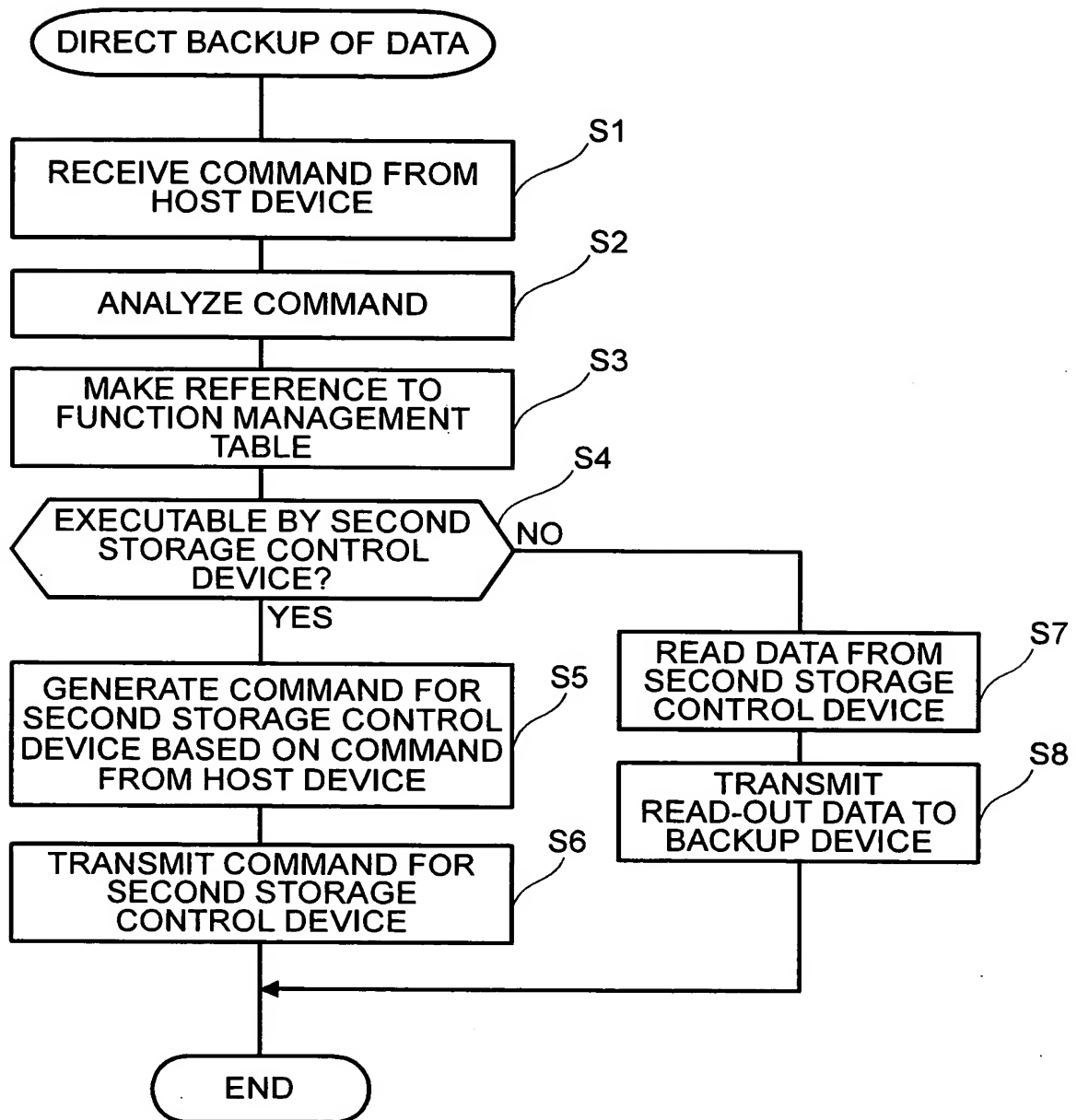


FIG.15

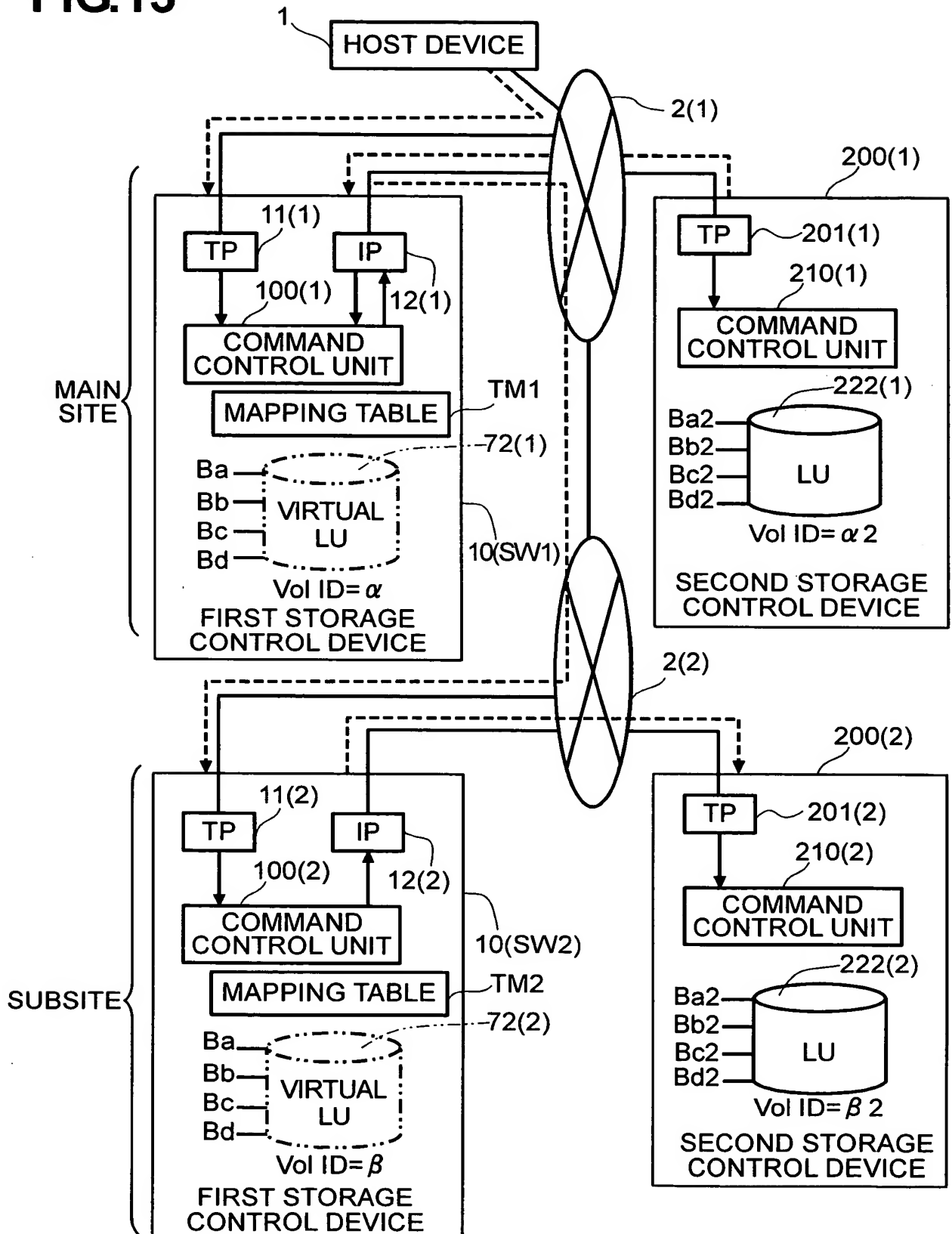


FIG.16

(a) EXAMPLE OF MAIN SITE SIDE MAPPING TABLE

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
α	Ba	SD2(1)	TP2(1)	$\alpha 2$	Ba2
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
α	Bd	SD2(1)	TP2(1)	$\alpha 2$	Bd2

(b) EXAMPLE OF SUBSITE SIDE MAPPING TABLE

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
β	Ba	SD2(2)	TP2(2)	$\beta 2$	Ba2
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
β	Bd	SD2(2)	TP2(2)	$\beta 2$	Bd2

(c) COMMAND STRUCTURE WHEN PERFORMING INITIAL COPY

COMMAND CODE (INITIAL COPY START REQUEST)	ORIGINAL DEVICE ID (SD1(1))	ORIGINAL Vol ID (α)	DESTINATION DEVICE ID (SD1(2))	DESTINATION Vol ID (β)
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FIG.17

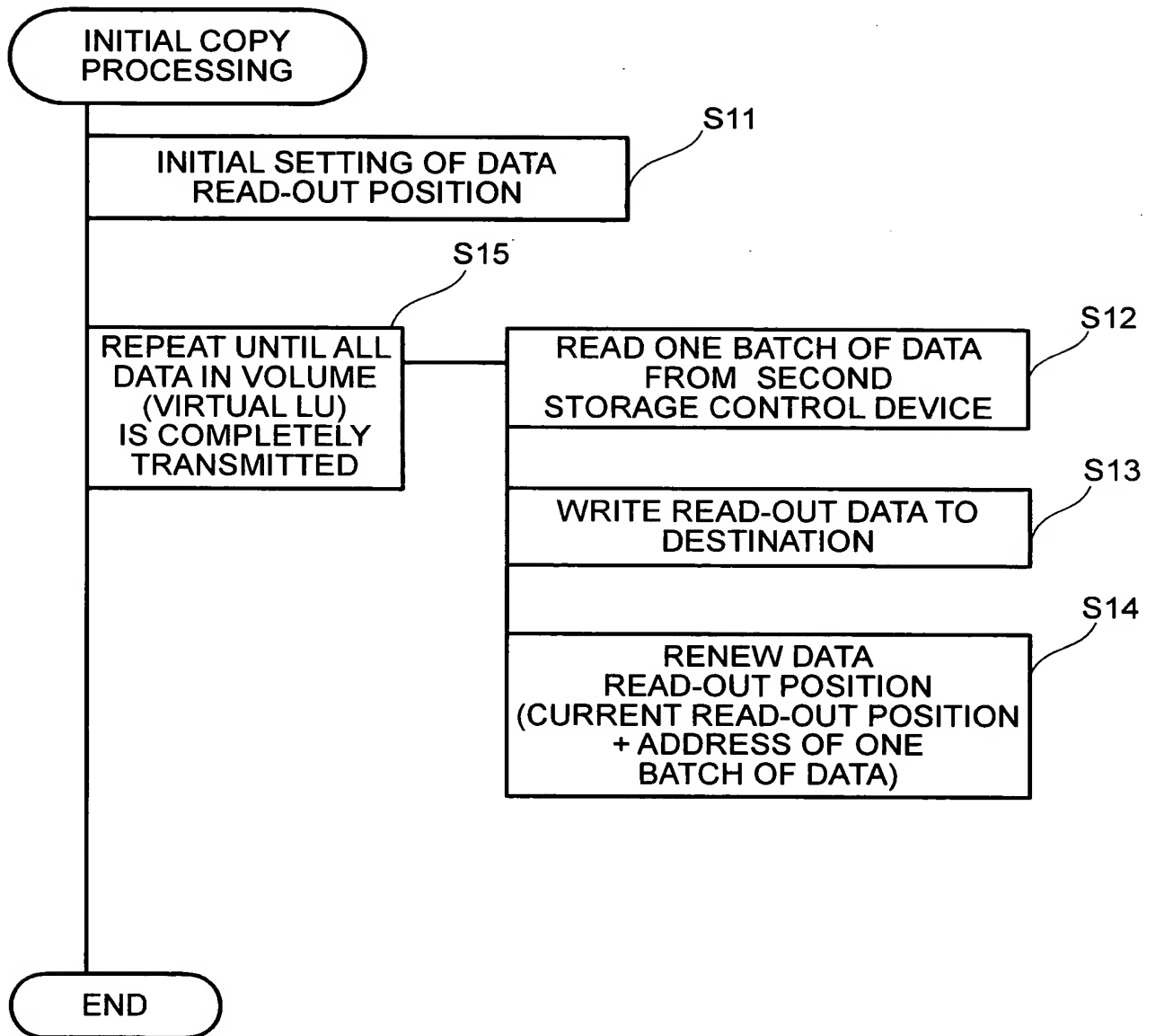


FIG.18

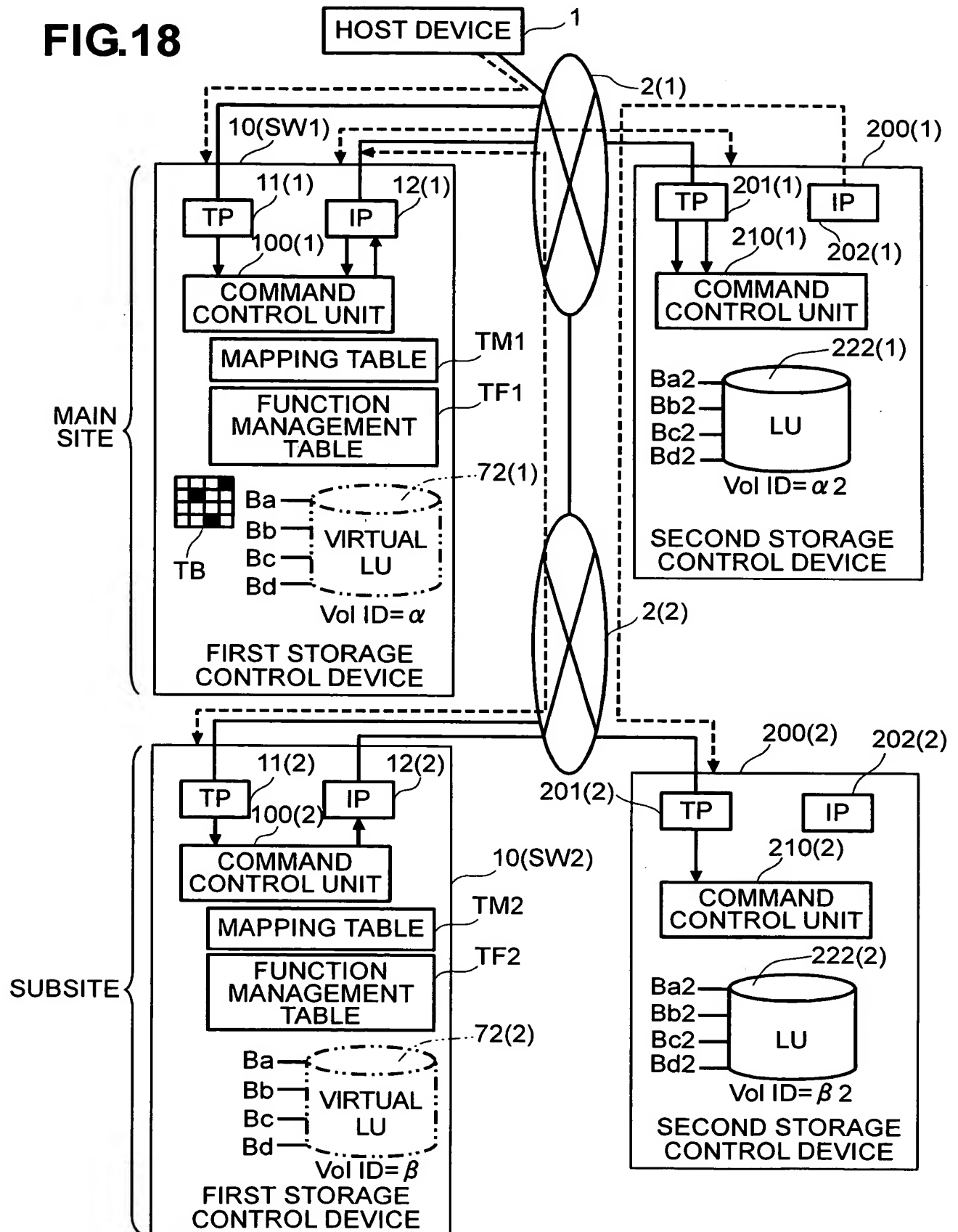


FIG.19

(a) EXAMPLE OF MAIN SITE SIDE MAPPING TABLE

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
α	Ba	SD2(1)	TP2(1)	$\alpha 2$	Ba2
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
α	Bd	SD2(1)	TP2(1)	$\alpha 2$	Bd2

(b) EXAMPLE OF SUBSITE SIDE MAPPING TABLE

Vol ID	BLK ADDR	DEVICE ID	Port ID	Vol ID	BLK ADDR
β	Ba	SD2(2)	TP2(2)	$\beta 2$	Ba2
\vdots	\vdots	\vdots	\vdots	\vdots	\vdots
β	Bd	SD2(2)	TP2(2)	$\beta 2$	Bd2

(c) EXAMPLE OF MAIN SITE SIDE FUNCTION CONTROL TABLE

DEVICE ID	Port ID	SUPPORT FUNCTION F1	SUPPORT FUNCTION F2	...	SUPPORT FUNCTION F _n
SD2(1)	TP2(1)	POSITIVE	NEGATIVE	...	POSITIVE

(d) EXAMPLE OF SUBSITE SIDE FUNCTION CONTROL TABLE

DEVICE ID	Port ID	SUPPORT FUNCTION F1	SUPPORT FUNCTION F2	...	SUPPORT FUNCTION F _n
SD2(2)	TP2(2)	POSITIVE	POSITIVE	...	NEGATIVE

(e) COMMAND STRUCTURE WHEN PERFORMING INITIAL COPY

COMMAND CODE (INITIAL COPY START REQUEST)	ORIGINAL DEVICE ID (SD1(1))	ORIGINAL Vol ID (α)	DESTINATION DEVICE ID (SD1(2))	DESTINATION Vol ID (β)
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FIG.20

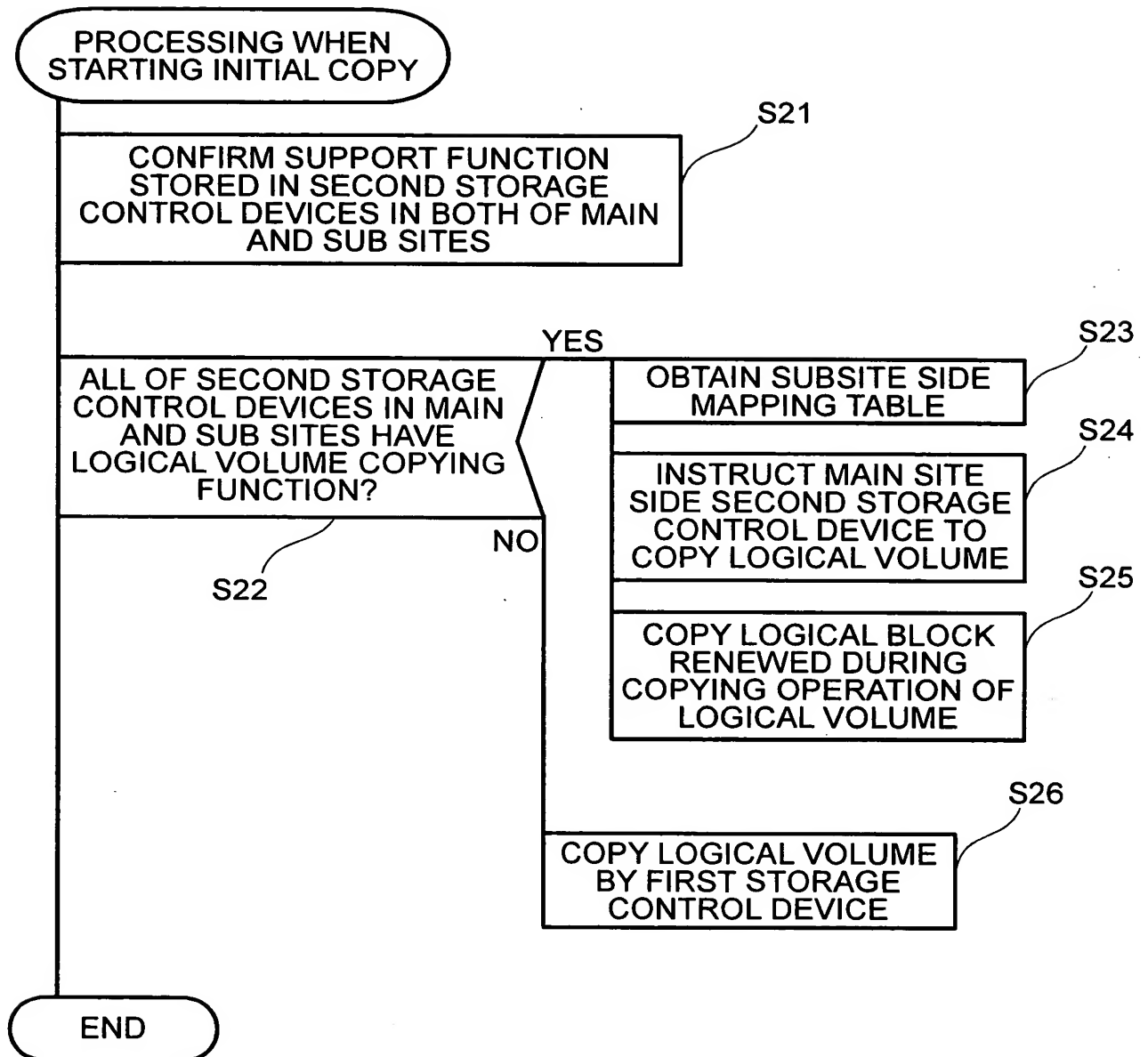


FIG.21

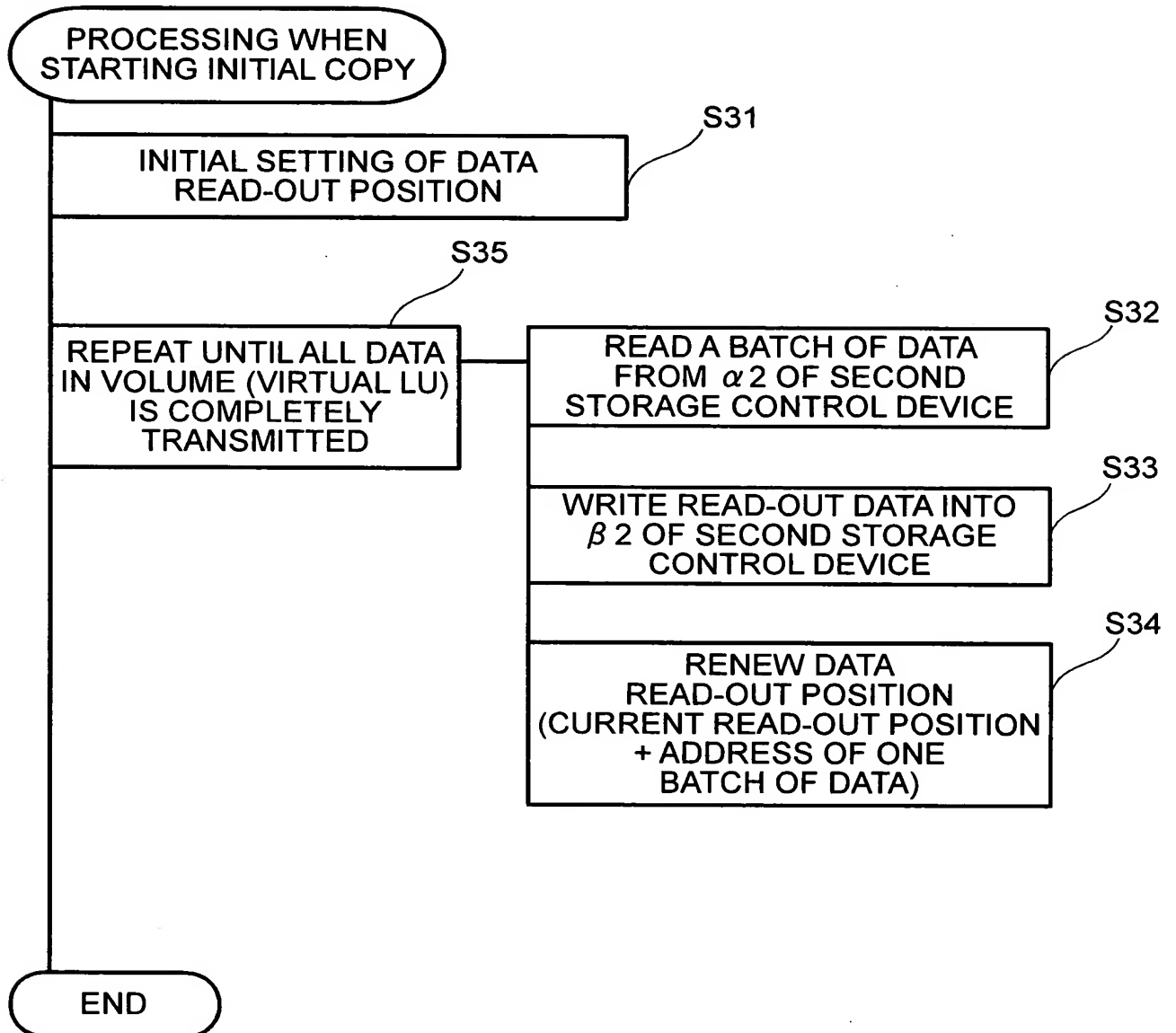


FIG.22

